

Patent Application No. 10/047,863

IN THE CLAIMS:

Please amend claim 10 as follows:

- Claim 1. (previously presented)      An apparatus for sensing parameters and for controlling the transfer of data representing such sensed parameters, the apparatus having limited data computation and storage capability and being located remotely from a base computing station having substantially greater data computation and storage capability, the apparatus comprising:
- a data acquisition controller which controls the operation of one or more physical parameter sensors and stores acquired data in progressive data representation format;
  - 10      a data transmitter which transmits data representing parameters sensed by the one or more parameter sensors to the base station;
  - an in-situ progressive decision support module which directs the data acquisition controller to obtain data representing one or more physical parameters determined to have relatively highest utility to a decision maker given processing constraints of the control apparatus, and which assigns a transmission priority to such data in its progressive representation format and directs the data transmitter to transmit such data to the base station given the assigned priority, the in-situ progressive decision support model
  - 15      including means for receiving feedback from the base station to adjust the relative utility of data describing physical parameters for use in subsequent data sensing and transmission;
  - wherein the in-situ progressive decision support module makes use of a model describing a condition of interest to a decision
  - 20      maker, the model including one or more parameters measurable by the parameter data sensor;
  - wherein the model having one or more variables representing measurable parameters; and
  - wherein the in-situ progressive decision support module
  - 30      determines parameters for which data is to be gathered by taking the first order derivative of the model and ranking the result.

Claims 2-4 (canceled)

Patent Application No. 10/047,863

Claim 5. (previously presented) The apparatus of claim 1, wherein the in-situ progressive decision support module assigns a transmission priority to gathered data by taking the first order derivative of the model and ranking the result.

Claim 6. (previously presented) The apparatus of claim 1, where the model is a linear regression model whose one or more variables are associated with weights indicating the relative utility of the parameter to the decision maker.

Claim 7. (original) The apparatus of claim 6, wherein the apparatus further comprises:

means responsive to the feedback received from the base station for modifying the weights associated with measurable parameters;

5 means for directing the data acquisition controller to cause further parameter data to be gathered, the further parameter data to be gathered being dependent on changes in utility of such parameter data as indicated by the modified weights; and

10 means for assigning a modified transmission priority to such further parameter data and directing the data transmitter to transmit such parameter data to the base station given the modified transmission priority, the modified transmission priority being dependent on changes in utility of such parameter data as indicated by the modified weights.

Claim 8. (previously presented) A method for use in an apparatus for sensing parameters and controlling the transfer of data representing such sensed parameters, the apparatus having limited data computation and storage capability, located remotely from a base computing station having substantially greater data computation and storage capability, the transmission control apparatus including a data acquisition controller which controls the operation of one or more physical parameter sensors and a data transmitter which transmits data representing parameters sensed by the one or more parameter sensors to the base station, the method comprising:

10 determining an initial relative utility of parameter data that can be sensed by the apparatus;

Patent Application No. 10/047,863

directing the data acquisition controller to sense data  
describing one or more physical parameters determined to have  
15 relatively highest utility;  
    assigning a transmission priority to the sensed data;  
    directing the data transmitter to transmit the sensed data to  
the base station given the assigned priority;  
    determining, in response to feedback from the base station, a  
20 subsequent relative utility of parameter data for use in subsequent  
data sensing and transmission;  
    wherein the determination of an initial relative utility of  
parameter data is based on a model describing the utility of such  
data to a decision maker; and  
25 wherein the determination of an initial relative utility is  
performed by taking the first order derivative of the model and  
ranking the result.

Claim 9. (canceled)

Claim 10. (currently amended) The method of claim ~~10~~ 1, wherein  
the model comprises one or more variables representing measurable  
parameters.

Claim 11. (canceled)

Claim 12. (previously presented) The method of claim 10,  
wherein transmission priority is determined by taking the first order  
derivative of the model and ranking the result.

Claim 13. (previously presented) The apparatus of claim 10,  
where the model is a linear regression model whose one or more  
variables are associated with weights indicating the relative utility  
of the parameter to the decision maker.

Claim 14. (original) The method of claim 13, further comprising:  
modifying, in response to the feedback received from the base  
station, the weights associated with measurable parameters,  
5 directing the data acquisition controller to cause further  
parameter data to be sensed, the further parameter data to be sensed  
being dependent on changes in utility of such parameter data as  
indicated by the modified weights; and

Patent Application No. 10/047,863

10 assigning a modified transmission priority to such further sensed data and directing the data transmitter to transmit such parameter data to the base station given the modified priority, the modified transmission priority being dependent on changes in utility of such parameter data as indicated by the modified weights.

5 Claim 15. (previously presented) An apparatus for sensing parameters and for controlling the transfer of data representing such sensed parameters, the apparatus having limited data computation and storage capability and being located remotely from a base computing station having substantially greater data computation and storage capability, the apparatus comprising:

10 a data acquisition controller which controls the operation of one or more physical parameter sensors and stores acquired data in progressive data representation format;

a data transmitter which transmits data representing parameters sensed by the one or more parameter sensors to the base station;

15 an in-situ progressive decision support module which directs the data acquisition controller to obtain data representing one or more physical parameters determined to have relatively highest utility to a decision maker given processing constraints of the control apparatus, and which assigns a transmission priority to such data in its progressive representation format and directs the data transmitter to transmit such data to the base station given the assigned priority, the in-situ progressive decision support model  
20 including means for receiving feedback from the base station to adjust the relative utility of data describing physical parameters for use in subsequent data sensing and transmission;

25 wherein the in-situ progressive decision support module makes use of a model describing a condition of interest to a decision maker, the model including one or more parameters measurable by the parameter data sensor; and

wherein the in-situ progressive decision support module determines parameters for which data is to be gathered by taking the first order derivative of the model and ranking the result.